

CLAIMS

I claim:

1. A retaining apparatus for securing a heat sink in thermal coupling with a CPU, the retaining apparatus comprising:

a press plate part having spring members and a central part, the central part being lower than the spring members;

a hold bar part joined to the press plate part, the hold bar part having one or more hook legs extending downward and being releasably engageable with a CPU base;

a retaining bar part disposed at a side of the press plate part opposite to the hold bar part; and

one or more movable hook legs movably coupled to the retaining bar part, the movable hook legs extending downward and being releasably engageable with a CPU base;

wherein when a heat sink is placed over a CPU base the retaining apparatus is installed by engaging the hook legs of the hold bar part and the movable hook legs of the retaining bar part with a CPU base, the press plate of the retaining apparatus presses against a central area of the heat sink and thereby secures the heat sink.

2. The retaining apparatus of claim 1, wherein the movable hook legs are joined together by a connecting plate.

1 3. The retaining apparatus of claim 1, wherein the retaining apparatus is
2 composed of a heat conductive metal.

1 4. The retaining apparatus of claim 1, wherein the press plate part, the hold
2 bar part, and the retaining bar part are formed integrally by way of stamping.

1 5. The retaining apparatus of claim 1, wherein the movable hook legs
2 include outward turn plates so that pressing or pulling on the outward turn plates tends to
3 rotate the movable hook legs with respect to the retaining bar part.

1 6. The retaining apparatus of claim 1, wherein the spring members of the
2 press plate part are radially symmetrical.

1 7. The retaining apparatus of claim 6, wherein the spring members of the
2 press plate generally form an X shape, the central part located at the intersection thereof.

1 8. A retaining apparatus for securing a heat sink on a CPU located within a
2 CPU base, the retaining apparatus comprising:

3 attaching means for releasably engaging the retaining apparatus to the CPU
4 base;

5 resilient means for pressing against a central portion of the heat sink when the
6 retaining apparatus is engaged with the CPU base, thereby securing
7 the heat sink to the CPU for receiving heat therefrom; and
8 detaching means for disengaging the retaining apparatus from the CPU base.

- 1 9. A cooling assembly for a CPU, the cooling assembly comprising:
2 a heat sink configured to fit over and thermally couple with a CPU, located
3 within a CPU base;
4 an auxiliary radiator thermally coupled to the heat sink by one or more heat
5 pipes; and
6 a retaining apparatus for securing the heat sink, the retaining device
7 configured to releasably engage with the CPU base, the retaining
8 device having a resilient press plate so that, when engaged with the
9 CPU base, the press plate deflects from a rest state and applies a
10 securing force against the heat sink to keep the heat sink in place and
11 in good thermal coupling with the CPU.

- 1 10. The cooling assembly of claim 9, the retaining apparatus includes four
2 hook legs at four corners thereof, the hook legs configured to engage with hole in each of
3 four posts of a CPU base.

1 11. The cooling assembly of claim 9, wherein the heat sink includes a
2 plurality of heat discharge fins and a top plate, the top plate disposed on top of the heat
3 sink and configured to contact the press plate of the retaining apparatus when installed.

1 12. The cooling assembly of claim 9, further comprising a fan configured to
2 direct a flow of air through the auxiliary radiator and outside of a computer housing.